

ABSTRACT

A magnetic thrust bearing having a high speed rotation capability and low cost construction. The magnetic thrust bearing has permanent magnets to provide bias flux. The magnetic circuits of the control flux and bias fluxes are substantially non-coincident, which allows for a low reluctance and efficient path for the control flux. The flux paths of the permanent magnets are completely defined with minimized airgaps for achieving higher forces and efficiency and very low control currents produce extremely large forces. No radially magnetized permanent magnets are required and no permanent magnets are attached to the rotor.

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